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ONTARIO
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REVIEW

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Spring-Summer, 1970



DEPARTMENT OF LANDS AND FORESTS

HON. RENE BRUNELLE, MINISTER

G.H.U. BAYLY, DEPUTY MINISTER

ONTARIO FISH AND WILDLIFE REVIEW

Vol. 9, No. 1-2

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THE COVER

Speaking of history and wildlife, the big sturgeon are not all gone. Our 234-pound, 90-inch prize was taken in Lake of the Woods in 1965 when it became entangled in fishing nets—the historic downfall of the species. Our back cover is a sad reminder that the appealing call of the loon may be on the wane.

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A VERY UNCERTAIN FUTURE

by C. H. D. Clarke
Chief, Fish and Wildlife Branch

We are all more and more concerned with fauna preservation (and flora, too, for that matter) and here there are some elementary facts that we should never forget.

In the first place, security is not a matter of numbers. It once fell to my lot to remark that the few musk-oxen in the Canadian Arctic were reasonably secure while the caribou, which numbered a couple of millions, were not, because their environment was vulnerable. I never imagined that in another ten years we would actually be alarmed for the caribou.

There is no safety in numbers. In 1953, the Ontario catch of blue pickerel (blue walleye, blue pike) from Lake Erie was ten million pounds. Ten years later, it was gone. Why? Because the Lake Erie it lived in was gone.

This case was special only because Lake Erie was so large and the blue pickerel were so numerous. There are literally scores of small creatures (and a few big ones) in North America that have been confined to a few localities where they were, or are, too small or inconspicuous to be noticed. They used to be perfectly safe, but nowadays we are changing the physical environment on such a scale that their niches are being wiped out. Undoubtedly, useful creatures have gone—without anybody even knowing about them.

To crown it all, we are poisoning the whole biosphere. Because the sea is the ultimate repository of all our poisons, we threaten to poison its creatures, or at least render them unfit for our use—a simple projection of what we are doing to fresh waters.

The first of our birds to vanish, the Great Auk of the North Atlantic, had a last refuge that was completely safe until it blew up in a volcanic eruption, as if the powers of the universe were arrayed against it, as well as the malice of man.

However, if it had lived until today, the auk, like its living relatives, would certainly have been loaded with pesticides and polychlorinated biphenyls, and facing a very uncertain future.

Aren't we all?



The passenger pigeon. Photograph of a painting by Fenwick Lansdowne.

ENDANGERED BIRDS AND MAMMALS IN ONTARIO

by D. W. Simkin
Supervisor, Game Management

In this day and age, there is much concerned talk about extinct and vanishing species of wildlife and about environmental preservation. During the last quarter-century, industrial man has developed an enormous arsenal of materials with which to alter the environment in search of more economic growth. Unfortunately, many of these efforts were very short sighted in perspective and in the final analysis may have done more harm than good to society. Only recently have people become really concerned with the costs to society of destroying wildlife habitat, and even now there is not enough ecological information available to assess the possible effects of various man-made environmental changes. One thing is certain, however, and that is that the public is becoming increasingly aware of the value of the out-of-doors environment and its wild inhabitants.

Many factors can and have led to the serious reduction of certain wildlife species. They can be very conspicuous, as with the overharvesting of bison by commercial hunters, or go virtually unnoticed, as was the case with the wild turkey which succumbed woodlot by woodlot as agricultural man slowly but surely eliminated the expansive stands of mast (such as acorns and beechnuts) producing forests and replaced them with agricultural fields.

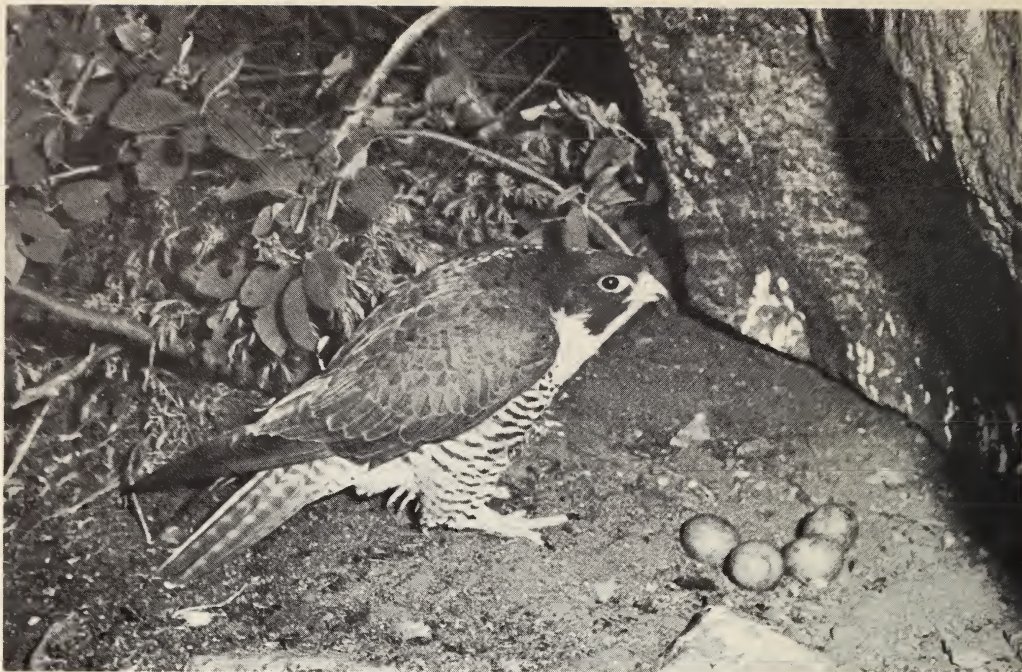
Certainly, at the time that DDT was released for public use, no one realized what a powerful and easily dispersed chemical it was, or that it could possibly become concentrated in wildlife species thousands of

miles away from the source of application—for instance, polar bears in the Arctic Ocean, and Weddell's seals in the Antarctic. Certainly, no one realized, or perhaps even gave thought, that the chemical would be so damaging to non-target animal life, or that it would persist in the environment for many years before it would break down into less harmful compounds. Hopefully, as a result of the lessons learned from DDT, and the publicity by people such as Rachel Carson, the chances of such phenomena occurring in the future are now much reduced.

In spite of all the concern which has been shown for our environment and its wildlife populations, there is still a continuous process of deterioration going on, eating away at the natural resource like a malignant cancer. Sometimes the people involved are aware of the adverse results of their actions, and they justify them on the basis of economic arguments. More frequently, however, the harm is done unknowingly and is not really noticed until a local population of birds or a rare species of the flora is reported missing.

Who in a municipal roads department would have guessed that the shrubs along that stretch of road, recently sprayed with herbicide, provided important food and cover for 15 cottontails, 10 ring-necked pheasants, and six pairs of yellow warblers?

Who on the township council realized that through the years the "undesirable" bog, which had necessitated a bend in the road (only recently straightened out as a result of the acquisition of a better earth



The peregrine falcon, endangered raptor, at nest on face of cliff in Haliburtons.

mover), contained the southernmost recorded stand of an uncommon orchid and the northernmost population of the prothonotary warbler? Perhaps someone should have asked.

Although misuse of pesticides has been given most of the publicity in recent times, an equally great enemy of our wildlife is the unnoticed destruction of wildlife habitat in the name of progress. Subdivision development, modernization of farming methods with its elimination of fence rows, highway construction with the removal of roadside shrubs and the filling in of wetland areas—all spell doom to wildlife just as surely as if the animals had been killed outright. Wildlife cannot live without habitat, and it is wildlife habitat which is becoming a scarce commodity in many parts of the country.

Recently, two lists, one of endangered mammals, and the other of endangered birds, of the world was prepared by experts working for the International Union for the Conservation of Nature (IUCN). Of the

many species of mammals listed, only two are, or have been, native to Ontario. They are the polar bear and the puma.

Polar bears exist in Ontario along the Hudson and James Bay shores in higher densities than in most areas of the Arctic or sub-Arctic. Although there are places in the continental range of the polar bear where the species is endangered or has even been exterminated, such is not the case in Ontario. Indeed this population, which is the most southern one in the world, is perhaps too numerous, as indicated by recent authentic reports of polar bears killing polar bears presumably because of territorial strife. Aerial surveys to count bears are made in Ontario each summer, and counts of over 100 (known to be incomplete) on the narrow coastal strip are considered normal.

The puma or mountain lion, likely, never was a very common animal in Ontario even before the white man came on the scene. At that time, it was undoubtedly restricted to the narrow fringe of deer range which



The polar bear, endangered elsewhere but not in Ontario. Photo by H. G. Lumsden.

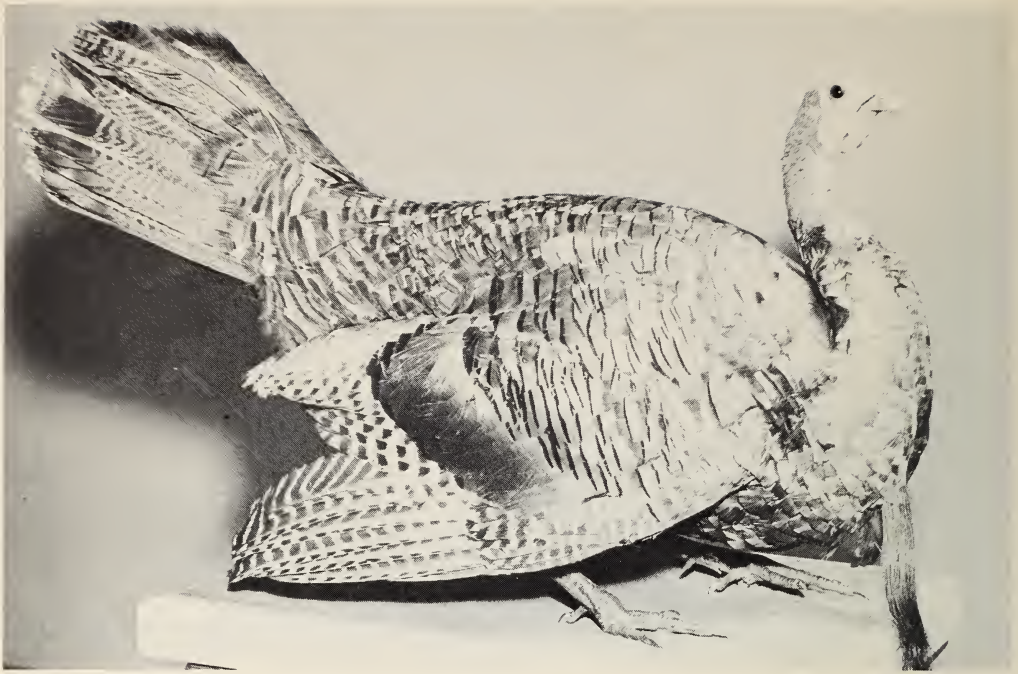
existed along the shores of Lakes Erie and Ontario and which constituted the northern limit of range for white-tailed deer. Although deer became much more plentiful after timber operations and fire created thousands of square miles of new range, there is little evidence to indicate that pumas increased accordingly. It is entirely possible that the species still exists in Ontario, especially in the very productive deer range of northwestern Ontario in the general Kenora area.

In the second IUCN publication, two bird species, which live in Ontario at sometime in the year, were listed. These are the Hudsonian godwit and the Eskimo curlew, two species which breed in the far-northern tundra and whose biology is very poorly known. Indeed, only in the past ten years was it discovered that the Hudsonian godwit nested in Ontario. After the initial discovery, it was found that considerable numbers of breeding birds can be found in the sub-Arctic region of the Province.

The Eskimo curlew, which never was more than an uncommon spring visitor to Ontario, was very heavily hunted by market hunters in its main range further west, and the abundant population of the late 1800s crashed, presumably because of this. Since that time it has been protected but for some unknown reason has failed to respond. Perhaps there are factors other than hunting which decimated this once abundant species. Disease, parasites, strategically located essential habitat, and food are factors worthy of study.

Subsequent to the publication of the IUCN lists, Volume 84 of the Canadian Field Naturalist contained articles on endangered mammals and birds. The article on mammals listed no additional species for Ontario, but the bird article listed the greater prairie chicken, the bald eagle, the osprey, and the peregrine falcon.

At the present time, it is believed that possibly with the exception of a small population of prairie chickens on Manitoulin



The wild turkey as represented in a display at the Royal Ontario Museum.

Island, this species has become extinct in Canada. The major reason given for the endangered condition of this bird is destruction of its habitat by grazing and intensive agricultural practices. Strangely enough, although these two factors are of minor importance in the Ontario range, this population is very much in danger of becoming extinct because the individuals are interbreeding with their close relatives, the prairie sharptailed grouse.

The other three species listed, the bald eagle, osprey and peregrine falcon are all raptors and, of course, make their living by eating other animals. Prey species, which have been debilitated for some reason or other, be it accident, disease, parasite or accumulation of pesticides, are more vulnerable to such birds and, perhaps, by unusual behaviour caused by their affliction, even lure raptors to them. Thus we see that raptors can through their animal-eating habits be exposed to large doses of pesticides some of which, like DDT and its derivatives,

are extremely persistent. Consequently, it is not surprising that, of the four species listed as endangered, three of them are efficient predators.

Adult birds can and do die from over-accumulation of persistent pesticides, but recent studies have shown that the main way in which pesticides affect them is by upsetting their internal workings so that the shells of their eggs are too thin to withstand the wear and tear of an incubating adult. As a result, the eggs break before the normal hatching time. It is obvious that if fewer young are produced the species becomes endangered.

Although the species named above are the ones officially listed as endangered, they are probably only the ones most susceptible to the new elements introduced into the environment or least tolerant of habitat changes. As such, they should be looked upon as the miners of old looked on their canaries. Like the miners, we should heed such signs and intensify our efforts to undo



Sharp-tailed grouse x prairie-chicken hybrid, booming. Photo by H. G. Lumsden.

what has been done and insure that the chances of it recurring are extremely remote.

The Department of Lands and Forests is vitally concerned with our native wildlife. Department staff monitor water and game animals for pollutants such as DDT and mercury; game populations are censused; wildlife habitat is improved on Crown lands; advice and recommendations are given to private individuals to enable them to manage their lands better for wildlife; and key

wildlife lands are continually being surveyed and the most important purchased so that they can be managed in the best interest of the wildlife species for all the people of the Province.

The more the people of Ontario become aware of environmental problems and man's place in the scheme of nature, the more they will insist that emphasis be placed on wise management of the environment and its inhabitants.

COMMON AND SCIENTIFIC NAMES OF BIRDS

in order of appearance in this article

Turkey	Meleagris gallopavo
Ring-necked pheasant	Phasianus colchichus
Yellow warbler	Dendroica petechia
Prothonotary warbler	Protonotaria citrea
Hudsonian godwit	Limosa haemastica
Eskimo curlew	Numenius boreatis
Greater prairie chicken	Tympanuchus cupido
Bald eagle	Haliaeetus leucocephalus
Osprey	Pandion haliaetus
Peregrine falcon	Falco peregrinus
Prairie sharptailed grouse	Padiocetes phasianellus

COMMON AND SCIENTIFIC NAMES OF MAMMALS

in order of appearance in this article

Bison	Bison americanus
Polar bear	Thalarctos maritimus
Weddell's seal	Leptonychotes weddelli
Cottontail rabbit	Sylvilagus floridanus
Puma	Felis concolour
White-tailed deer	Odocoileus virginianus

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EXTINCT, RARE AND ENDANGERED FISHES IN ONTARIO

by F. P. Maher

Supervisor, Fisheries Inventory Unit

Seen a brindled madtom lately? Not likely! No, this isn't some fearsome beast from Africa, but a small catfish which rarely exceeds three inches in length in Ontario and is found only in the Sydenham River and two streams flowing into Lake Erie.

What's the point of this question? Well, the brindled madtom is typical of several species of fish which could be disappearing under our noses without most of us being any the wiser. Even large mammals like the deer can be abundant in an area and yet be seldom seen. Since the brindled madtom is known to occur only in three limited localities in Ontario, and is in addition a small and inconspicuous fish of interest to very few people, the chances of its disappearance being noted, except by a serious investigator, are slim indeed.

Birds and mammals are air breathers, and we see them all about us in our daily travels. Even the city dweller sees his share of pigeons and squirrels, but it takes a real effort to see fish in their natural environment. Other than small fish swimming around a dock, the only glimpse most of us have of a fish is when it flops around in the bottom of a boat (attached more or less firmly to a gaudy fishing lure) or gazes dull-eyed at us from a tray on a store counter.

The trilling of a warbler can brighten the day for us, and a cuddly bear cub can reduce many people to sentimental mush. On the other hand, a young lake trout wouldn't do much for you even if you could achieve the

almost impossible task of seeing one outside an aquarium. Apart from being hard to see, fish are difficult to relate to. We can generally work up some enthusiasm for the beautiful colouring of a spawning rainbow trout, and we tend to admire the fighting qualities of a bass on the end of a fishing line, and the persistence of the salmon thrashing its way upstream to its spawning grounds. But let's face it—most fish are hard to get enthusiastic about. The expressions, "cold as a fish" and "dead as a mackerel", pretty well sum up our feelings about our finny friends.

Partly because fish are hard to see and difficult to love, most people are only aware of the handful of native species which are important in sport and commerce. Others, although abundant in our lakes and streams, are seldom caught and rarely recognized. We sometimes receive calls from startled trout fishermen who say: "I caught this fish on a worm. It has a huge head, a large mouth, great big fins up front, and a tiny body. It's about four inches long. Never saw one before. It must be something new." This is a good example—the slimy sculpin just described, is common in trout streams, but it is seldom seen by fishermen because of its protective coloration and bottom-dwelling habit.

One of the responsibilities of fisheries scientists is to document the status of fish populations of all species. Since there are few scientists in relation to the size of the province, they rely, in part, on public



A preserved specimen of the deepwater sculpin, a fish which seems to have disappeared from Lake Ontario. Photo by W. Carrick.

awareness to alert them to places where certain species are becoming dangerously reduced. This poses a serious problem since, as we have seen, fish are hard to see and not well known to the general public. Add to this the lack of charm that fish have for most people, and the situation becomes worse.

Before going further, it might be well to identify what we mean by rare and endangered species. We have many species of fish in Ontario which are at the extreme edge of their northern range. Many of these fish, while they may be rare in Ontario, are abundant south of the border. The spotted gar, a long, cigar-shaped fish with a lengthy beak-like snout and a tough armour-like covering of diamond-shaped plates of bone, is found only in the shallow weedy waters of Lake Erie, the Detroit River and Lake St. Clair. The same holds true for the grass pickerel which occurs only in southern Ontario.

Other fish in this same category are the lake chub sucker, the silver chub, the pugnose minnow, the pugnose shiner, the channel darter, the least darter and the gravel chub. All of these fish have extremely limited occurrence in southern Ontario because they are close to the end of their northern range. Water temperature appears to be the limiting factor here since other

environmental factors, such as food, habitat and spawning facilities, seem suitable.

A truly rare fish is one which is found only in a limited area and not anywhere else, or one which is extremely scarce over a wider range. One example of such a fish in Ontario might be the aurora trout. This fish, a form of the brook trout, was originally found only in White Pine Lake in the Timagami forest reserve and in two adjacent lakes, Whirligig and Little White Pine. None have been taken from the latter two lakes for ten years. It has recently been planted in other, nearby lakes, but due to the presence of brook trout it is likely that only hybrids are now present.

Unlike the brook trout, the aurora did not have red or light-coloured spots and dark vermiculations. The body and fins were light-coloured, and those who caught it described it as a uniquely beautiful fish. There is some doubt among ichthyologists as to whether or not this fish was a true species. Scott and Crossman (1969) do not list the aurora trout in their checklist of Canadian freshwater fishes.

Another example of a rare Ontario fish is a dwarf form of the lake whitefish which has been reported only from Lake Opeongo in Algonquin Provincial Park. Although the population of this fish is restricted to small areas, it is apparently in no danger of

extinction since it is not being exploited.

Sometimes a species was thought to be rare simply because surveys had not been carried out or because the proper gear had not been used for catching it. For example, the pigmy whitefish is common in Lake Superior but eluded capture until trawls were first used in 1952. Also, the Arctic char was unknown in the province until it was found in the Severn and Winisk rivers, both tributaries of Hudson Bay, when fisheries survey work was conducted in the early 1960s.

Environmental changes and direct fishing pressure have greatly reduced certain fish populations which were once abundant in Ontario.

The lake sturgeon was once plentiful throughout most of the large lake and river systems of Ontario, but now its numbers have dwindled. Several factors contributed to the decline of the sturgeon population. In pioneer days, it was considered a nuisance since it tangled nets set for other species, and the fish, itself, then had little commercial value. As a result, sturgeons were systematically destroyed in large numbers. The true value of sturgeon flesh and caviar was not realized until the population had been greatly reduced. The downward population trend was further accentuated through the construction of dams which cut off spawning grounds.

Because of their slowness in reaching sexual maturity (males don't mature until 12 to 19 years of age and females until between 14 and 23 years) and the fact that females only spawn every second year, sturgeon are extremely susceptible to over-fishing. For one or a combination of more than one of the above reasons, this fish is now considered rare in many parts of its range in Ontario.

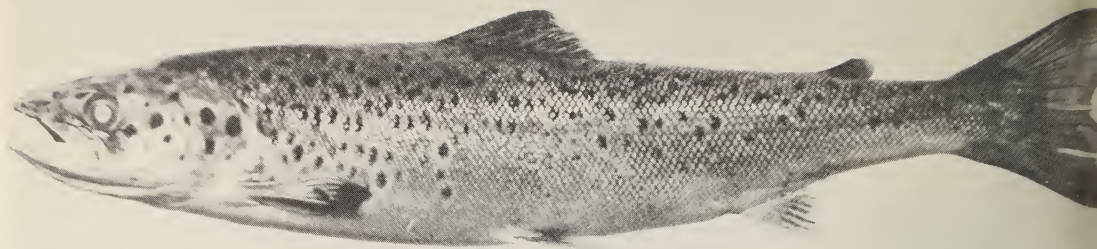
At one time, the blackfin cisco and the deepwater cisco were both abundant in Lakes Michigan and Huron. A combination of factors appear to have eliminated these fish. The arrival of the parasitic sea lamprey

through the Welland canal virtually eliminated the lake trout population from these lakes. The lake trout had fed heavily on smelt and alewives and apparently kept the population of these fish in check. With the lake trout gone, the population of smelt and alewives increased enormously and competed with the cisco for food and environmental niches. The cisco population began a rapid decline and finally disappeared. The blackfin cisco has not been reported since 1955, and the deepwater cisco not since 1951.

The blue pike (blue pickerel, blue wall-eye) was once abundant in Lakes Erie and Ontario and was an important commercial fish in the lakes. At the peak of the fishery in the mid 1950s, twelve million pounds were harvested annually. Destruction of the environment through pollution caused the population to crash, and by the mid 1960s the catch had dropped to eight pounds. The commercial fishery for this fish has gone, and the fish itself may be extinct.

The paddlefish, a fascinating fish distinguished by its elongated, paddle-shaped snout, was once found in Lake Erie, in the Spanish River on the Georgian Bay, in Lake Huron near Sarnia and in Lake Helen on the Nipigon River. It is really a "living fossil" since it is primitive and shark-like with cartilage rather than bone making up most of its skeleton. It attains a length of six feet in the Mississippi River and weighs up to 150 pounds. Although it is still found in the Mississippi drainage in the United States, its numbers are dwindling, and it has not been seen in Ontario for fifty years. It can rightly be said to be extinct here.

Our most infamous loss is that of the Atlantic salmon. It was once abundant in Lake Ontario where early pioneers used it as a staple item in their diet. At that time, streams were cold and clean with good gravel bottoms. However, industry and agriculture, with their attendant destruction of the environment, spelled doom for the salmon. Dams were built to provide power for mills,



"Our most infamous loss." Royal Ontario Museum's mounted specimen of an Atlantic salmon from Lake Ontario where it is now extinct. Photo by W. Carrick.

thus blocking access to spawning and nursery grounds for these fish; forests were cleared, silt loads increased, and gravel needed for spawning was covered. Cattle, using the streams, further added to the silting problem. As cover was removed and dams created reservoirs, stream temperatures rose above the level which was acceptable to these fish. When pollution was added to all this, the population crashed, and Atlantic salmon have not been taken from streams in Lake Ontario since 1893.

Several attempts have been made to re-introduce this fish to Ontario, but the only success has been in Trout Lake near North Bay where it appears to be self sustaining. As far as we know, this small population of Atlantic salmon is the only one in Ontario.

When the Atlantic salmon was common in Lake Ontario, it would have been difficult to persuade early settlers that it would ever become extinct. It is with this thought in mind that we look uneasily at some of our present-day important species such as the lake trout. Here is a fish which was once abundant throughout all of the Great Lakes except Lake Erie, but its numbers were drastically reduced by the sea lamprey, almost to the point of extinction. It occurs elsewhere in deep cold lakes throughout Ontario, but even here there are warning

signs.

The lake trout is a slow-growing and slow-maturing fish. While the age at which it spawns varies over the province, most are spawning by age seven or eight. Fishing pressure, which has been increasing in the open water period, has further increased in the winter through the advent of the snowmobile. Indeed, the winter harvest on some lakes now exceeds that of the summer. There is also evidence that D.D.T. and other insecticides inhibit the production of young lake trout since many of the newly hatched fish do not survive. Let's hope that we have learned enough to prevent the lake trout from going the way of the Atlantic salmon.

It is a tragedy when any animal becomes extinct. Most scientists would argue that there are good reasons for preventing any animal from becoming extinct—even such nuisances as the mosquito, because the genetic information it had is lost to us forever. If we cannot defend some of these animals on purely aesthetic grounds, perhaps we have a more practical cause for concern. It is generally conceded that we are destroying our environment at an alarming rate. Our native fishes required thousands of years to develop in our waters. The species we have generally reflect environmental conditions which made it possible for these fish to exist here over the centuries. If we find fish

species disappearing one by one from some of our bodies of water, it should be a signal to us that the environment is changing and probably not for the better.

Some species of fish, like the sturgeon, are far more susceptible to fishing pressure and dams than others, but fishing pressure alone cannot account for the extinction of species such as the blue pike. If air, soil and water pollution, mis-use of the land, construction of dams and water diversions, are

all changing the quality of our environment to such degree that some of our animals are disappearing, it could well be a danger signal for the future survival of man.

In the case of the brindled madtom, it might be difficult to convince many people that the loss of this fish was of any great consequence to us. If we wake up some morning and find that the brindled madtom has departed, we should be worried. Perhaps he was trying to tell us something.

COMMON AND SCIENTIFIC NAMES OF FISHES in order of appearance in this article

Brindled madtom	<i>Noturus miurus</i>
Lake trout	<i>Salvelinus namaycush</i>
Rainbow trout	<i>Salmo gairdneri</i>
Smallmouth bass	<i>Micropterus dolomieu</i>
Largemouth bass	<i>Micropterus salmoides</i>
Atlantic salmon	<i>Salmo salar</i>
Slimy sculpin	<i>Cottus cognatus</i>
Grass pickerel	<i>Esox americanus vermiculatus</i>
Lake chubsucker	<i>Erimyzon sucetta</i>
Silver chub	<i>Hybopsis storeriana</i>
Pugnose minnow	<i>Opsopoeodus emiliae</i>
Pugnose shiner	<i>Notropis anogenus</i>
Channel darter	<i>Percina copelandi</i>
Least darter	<i>Etheostoma microperca</i>
Gravel chub	<i>Hybopsis x-punctata</i>
Spotted gar	<i>Lepisosteus oculatus</i>
Aurora trout	<i>Salvelinus fontinalis timagamiensis</i>
Lake whitefish	<i>Coregonus clupeaformis</i>
Pigmy whitefish	<i>Prosopium coulteri</i>
Arctic char	<i>Salvelinus alpinus</i>
Lake sturgeon	<i>Acipenser fulvescens</i>
Blackfin cisco	<i>Coregonus nigripinnis</i>
Deepwater cisco	<i>Coregonus johannae</i>
Sea lamprey	<i>Petromyzon marinus</i>
Rainbow smelt	<i>Osmerus mordax</i>
Alewife	<i>Alosa pseudoharengus</i>
Blue pike (blue pickerel)	<i>Stizostedion vitreum glaucum</i>
Paddlefish	<i>Polyodon spathula</i>

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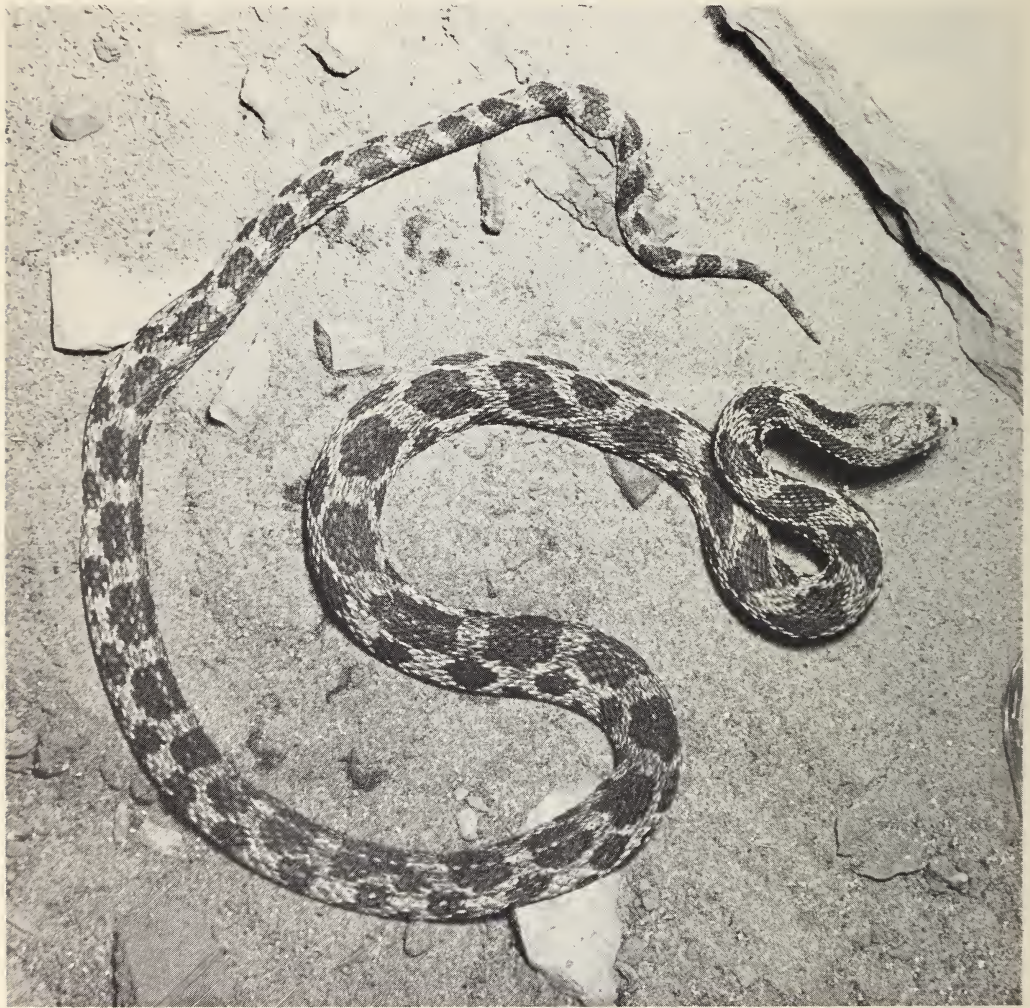
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Eastern fox snake, endangered species. The young are often killed because of a superficial resemblance to the massasauga rattler.

**Table of
EXTINCT, RARE AND ENDANGERED
VERTEBRATES IN ONTARIO
with notes on their present status**

EXTINCT

Mammals

(None)

Birds

Passenger Pigeon	<i>Ectopistes migratorius</i>	Last flock in Ontario, 1884. Last specimen taken in wild, 1900. Last living individual known died in captivity in Cincinnati Zoological Gardens, Cincinnati, Ohio, September 1, 1914.
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Wild Turkey	<i>Meleagris gallopavo</i>	Last specimen taken in Ontario, 1904. A few local attempts to re-introduce but with limited chance of success due to lack of availability of suitable habitat. Elsewhere in North America, many huntable populations remain.
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Reptiles

Timber Rattlesnake	<i>Crotalus horridus horridus</i>	Last one positively identified was captured at Niagara Glen in 1941.
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Amphibians

(None)

Fishes

Blue Pickerel	<i>Stizostedion vitreum glaucum</i>	Last reported from Lake Erie in 1966. This fish is probably extinct.
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Paddlefish	<i>Polyodon spathula</i>	Not reported from Ontario waters for 50 years. Extinct in the Great Lakes. Still found in Mississippi River.
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RARE OR ENDANGERED

Mammals

Puma	<i>Felis concolour</i>	Never very common. Infrequent and as yet unauthenticated reports from North Bay, White River and Kenora areas. Last Ontario specimen prior to 1908.
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Birds

Peregrine Falcon	<i>Falco peregrinus</i>	No known eyries in Ontario.
Bald Eagle	<i>Haliaeetus leucocephalus</i>	Still a common nesting species in north-western Ontario but with reduced nesting success and high levels of insecticide residues in eggs.
Osprey	<i>Pandion haliaetus</i>	Similar status to bald eagle.
Prairie Chicken	<i>Tympanuchus cupido</i>	No pure prairie chickens remain. Many hybrids (sharp-tailed grouse x prairie chicken) occur on Manitoulin Island.

Reptiles—Snakes

Black Rat Snake	<i>Elaphe obsoleta obsoleta</i>	Numbers drastically decreased especially in Lake Erie area.
Eastern Fox Snake	<i>Elaphe vulpina gloydi</i>	General decrease in numbers. People often kill this snake as the young bear a superficial resemblance to the massasauga rattler.
Blue Racer	<i>Coluber constrictor foxi</i>	Never common and now almost wiped out in its only Canadian locality (extreme southwestern Ontario) largely due to loss of habitat.
Queen snake	<i>Regina septemvittata</i>	Never common (southwestern Ontario).
Lake Erie Water Snake	<i>Natrix sipedon insularum</i>	Found only on a few islands in Lake Erie where its numbers are declining.
Butler's Garter Snake	<i>Thamnophis butleri</i>	Never very common.
Eastern Hognose Snake	<i>Heterodon platyrhinos</i>	Endangered mainly because of kills by people who believe it is a puff adder.



The spotted turtle, endangered by loss of habitat. Photo by T. Jenkins.

Eastern Massasauga
Rattlesnake

Sistrurus catenatus
catenatus

Still fairly abundant in some areas. People cannot be persuaded to let a venomous snake live especially in vacation localities.

Reptiles—Turtles

Spotted Turtle

Clemmys guttata

Becoming increasingly rare due to loss of marshy areas, pollution of waters, and collecting for the pet trade.

Eastern Spiny
Softshell Turtle

Trionyx spinifer
spinifer

Never very common and declining rapidly. Because of their aggressive nature, they are often killed.

Amphibians

Blanchard's Cricket
Frog

Acris crepitans
blanchardi

A very limited range, recorded only from Point Pelee and Pelee Island.

Fowler's Toad

Bufo woodhousei
fowleri

Still relatively common in some areas, but it has disappeared from portions of its former range.



Eastern spiny softshell turtle. Photo by A. Helmsley.

Small-mouthed
Salamander

Ambystoma texanum

Found only on Pelee Island. Declining
in numbers.

Note—Amphibians are smaller and more secretive in their ways than reptiles, for the most part, so in some cases their present status may not be as well known. In general, amphibians are in considerable danger because most are aquatic in the early stages of life, and the pollution of waters and the draining and filling of swamps and marshes is taking a toll.

Fishes

Lake Sturgeon

Acipenser fulvescens

Once abundant throughout large lake
and river systems in Ontario. Considered
rare in many parts of its range.

Spotted Gar

*Lepistosteus
oculatus*

Found only in extreme southern Ontar-
io, the northern edge of its range.

Atlantic Salmon

Salmo salar

Extinct in Ontario except for a small
introduced population in Trout Lake
near North Bay. Still common in parts
of Quebec and north Atlantic coast
areas.

Arctic Char

Salvelinus alpinus

Rare in Ontario. It has been found
naturally occurring only in the Severn
and Winisk Rivers in the Hudson Bay
watershed. It has been introduced to
lakes in Algonquin Park. It is common
elsewhere in its range.

Deepwater Cisco	<i>Coregonus johanna</i>	Once abundant in Lakes Michigan and Huron. Last reported in 1951. Possibly extinct.
Blackfin Cisco	<i>Coregonus nigripinnis</i>	Once abundant in Lakes Ontario, Michigan and Huron. Last reported in 1955. Possibly extinct.
Grass Pickerel	<i>Esox vermiculatus</i>	At northern edge of its range, this fish occurs in Ontario only in extreme south. Occurs in United States from Lakes Erie and Ontario to eastern Texas.
Lake Chubsucker	<i>Erimyzon sucetta</i>	Common in the United States but reported only from Lake St. Clair and Lake Erie in Ontario.
Bigmouth Buffalo	<i>Ictiobus cyprinellus</i>	Widely distributed in United States but only one specimen reported from Long Point Bay in Lake Erie, an 18-pound fish taken by a commercial fisherman.
Golden Redhorse	<i>Moxostoma erythrurum</i>	Widely distributed in the United States, but found only in Catfish Creek, a tributary of Lake Erie, in Lake St. Clair, and in southern Lake Huron drainages in Ontario.
Black Redhorse	<i>Moxostoma duquesnei</i>	Widely distributed in medium sized clear rivers in the United States. Found only in Catfish Creek and a tributary of the Grand River, both tributaries to Lake Erie. Has not been seen for 30 years.
Gravel Chub	<i>Hybopsis x-punctata</i>	A rare species in Ontario, reported only from the Thames River. Less rare in the United States.
Silver Chub	<i>Hybopsis storeriana</i>	A rare fish in Ontario. Occasionally captured in Lake Erie but not seen for 10 years. Less rare in the United States.
Pugnose Minnow	<i>Opsopoeodus emiliae</i>	A rare fish in Ontario. Reported twice from Lake St. Clair and once from the Detroit River. Less rare in the United States.

Redside Dace	<i>Clinostomus elongatus</i>	Found only in clear streams flowing into western Lake Ontario. Less rare in the United States.
Pugnose Shiner	<i>Notropis anogenus</i>	A rare fish in Canada. Occurs in clear, weedy ponds on Point Pelee, and the Upper St. Lawrence River. Less rare in the United States.
Cutlips	<i>Exoglossum maxillingua</i>	A rare fish in Ontario, found in fast flowing streams near Ivy Lea, Leeds County.
Brindled Madtom	<i>Noturus miurus</i>	A rare species in Canada, reported only from the Sydenham River and two streams flowing into central Lake Erie in Ontario. Less rare in the United States.
Longear Sunfish	<i>Lepomis megalotis</i>	Reported only from Lake Erie, Lake St. Clair, southern Georgian Bay and Rainy River regions. Occurs sparsely. Common in the United States.
Green Sunfish	<i>Lepomis cyanellus</i>	Rare in Canada. Found in Thames watershed, Perth County and some small lakes in Bruce County. Also reported from Quetico Park. Less rare in the United States.
Channel Darter	<i>Percina copelandi</i>	At the northern edge of its range in Ontario. Reported only from sand and gravel beaches near Port Burwell, Eri-eau, and Point Pelee in Lake Erie, and from the Detroit River.
Greenside Darter	<i>Etheostoma blennioides</i>	Found only in Lake St. Clair drainage. Less rare in the United States.
Least Darter	<i>Etheostoma microperca</i>	In Ontario reported only from western Lake Ontario, Lake Erie and Lake St. Clair. Less rare in United States.
Deepwater Sculpin	<i>Myoxocephalus quadricornis</i>	Occurred in deep waters of all the Great Lakes, Lake Nipigon and a few inland glacial lakes. It has virtually disappeared from Lake Ontario in recent years, where it was once abundant.



Candidates for extinction? Young cormorants on their nest on North Harbour Island in Lake Erie. Photo by L. J. Stock.

FUTURE—RARE OR ENDANGERED

Birds

Double Crested
Cormorant

Phalacrocorax auritus

Most likely next candidate for inclusion on future lists of endangered species. Nesting colonies are much reduced in size, and production from them is at very low level.

Common Loon

Gavia immer

Production suspected to be far below what it formerly was. High levels of insecticide residue in some analyzed eggs.



